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Sonerila anchurulica (Melastomataceae): A new species from South Western Ghats, India

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ABSTRACT

A new species of *Sonerila* (Family: Melastomataceae; Tribe: Sonerileae), *S. anchurulica* from the Periyar Tiger Reserve region of the South Western Ghats is described here. Taxonomic descriptions, morphological differences to the allied taxa, colour photographs and its conservation status are provided.

Keywords: Endangered, Endemic, New species, Sonerileae, South Western Ghats

1. INTRODUCTION

The genus *Sonerila* Roxb., a largest genus in the family, Melastomataceae (Tribe: Sonerileae) is mainly distributed in Sri Lanka and southern India to the Indo-Pacific regions (Cellinese, 1997; Resmi et al., 2018). This genus can be easily recognized by its erect or creeping terrestrial, low epiphytic herbs or semi-woody shrubby habit and consistently trimerous flowers, mostly scorpioid cymes and 3-locular, inferior ovary. Based on the recent estimations, this genus is represented by 207 species and of which, 64 species in India and Western Ghats has the highest species diversity with about 54 species (Salim et al., 2020; Pillai et al., 2024; POWO, 2024).

Botanical exploration of the forests of Kerala (as part of a climate change investigation), during 2020–2022, has yielded some interesting specimens of the genus *Sonerila*. Critical analysis of the literature as well as of herbarium specimens revealed that some of the collected specimens do not match any of the previously described species. These specimens are sufficiently distinct to warrant taxonomic recognition as new species and are here described and illustrated here.

2. MATERIALS AND METHODS

Conventional tools and techniques in plant taxonomy is employed for the collection and pressing procedures. Critical analysis of the literature Nayar, (1976), Prakash and Mehrotra, (1988), Gopalan and Henry, (1989), Giri et al., (1992), Ravikumar, (1999), Murugan and Manickam, (2002), Josephine et al., (2003), Lundin and Nordenstam, (2009), Murugesan and Balasubramaniam, (2011), Deepthikumary and Pandurangan, (2014), Sunil et al., (2014), Narayanan et al., (2015), Sujanalal et al., (2017), Murugan and Nair, (2016), Resmi et al., (2018), Pillai et al., (2024), POWO, (2024), as well as from the scrutiny of vouchers deposited in K, MH, TBGT and KUBH and information

from online databases (<https://plants.jstor.org>; <https://www.ipni.org>; <https://www.tropicos.org>; <https://www.biodiversitylibrary.org> and <https://www.wcsp.science.kew.org>) were carried out. The data presented was obtained through the study of live specimens in the wild, available herbarium materials and an in-depth literature survey. Voucher materials of this new species is stored in MH (Madras Herbarium, Coimbatore)

3. TAXONOMIC TREATMENT

Sonerila anchurulica J. Mathew, sp. nov. (Figure 1)

Type

India. Kerala, Idukki district, Anchuruli Hills, altitude 1360 m a. s. l., 09 July 2020, J. Mathew 6114 (holotype: MH!-Madras Herbarium- ; isotype: KUBH!). – Paratype: Same locality, 11 August 2021, J. Mathew 5714-5715 (KUBH!).

Diagnosis

Sonerila anchurulica is fairly similar to *S. zeylanica* Wight & Arn., especially in vegetative characters (growth form and branching pattern) but differs mainly in having: leaves with cordate base, 7 prominent nerves and lavender to pale purple colour in abaxial side (vs acute to round base, 3-5 nerves and pale green colour in *S. zeylanica*), Inflorescence with peduncle and having 8-10 flowers in a lax cyme (peduncle absent and 15-20 flowers in compressed cyme in *S. zeylanica*) and petals elliptic in shape and pale pink in colour (vs ovate and purple in *S. zeylanica*)

Description

Erect non-tuberos succulent herbs attaining 20–40 cm height. Stems branched, glabrescent, quadrangular in shape and grooved, red to purple in colour, hairs at nodes, Roots hairy, 1–6 cm long. Leaves opposite, fleshy, petiole 1–5.5 cm, adaxially grooved, sparsely hairy, lamina ovate to lanceolate, 2.1–6 × 1.5–4.1 cm, base cordate, slightly unequal, lavender to purple colour below, pale green above, both surface are tomentose, margins finely serrate with pink colourations, acute at apex, prominently 7-nerved, a pair of nerve obscurely seen near the margin, prominent nerves originates from base. Inflorescence terminal, scorpioid cyme with 8–10 flowers. Peduncle present, 3–5 cm long, quadrangular in shape and grooved, sparsely hairy.

Flowers 3-merous, bract not prominent, pedicel 0.4–0.7 cm, shorter than hypanthium, light green. Hypanthium 0.7–1.1 cm long, campanulate, light green with sparse glandular trichomes. Calyx lobes 3, 0.14–0.26 cm long, triangular, non-caducous, grabarous and pink tinge. Petals 3, 0.7–1.1 × 0.6 cm–0.8 cm, elliptic, acuminate at apex, light pink. Stamens 3; size of filaments and anthers are equal, filaments 0.4–0.5 cm long, glabrous, white; anthers yellow, 0.4–0.5 cm, cordate at base, shortly acuminate, beaked. Style 0.8–1 cm long, straight, purple towards the tip. Stigma capitate, glabrous. Capsule campanulate, 0.8–1.2 cm long and 0.52 cm wide, green. Seeds many, 0.09 × 0.05 cm, minutely tuberculed and brown in colour.

Flowering and fruiting

June-August.

Etymology

The specific epithet ‘anchurulica’ refers to the type locality of the new species.

Additional Specimens Examined

Kerala, Idukki District, Ezhukumvayal, in Periyar Tiger Reserve 1240 m, 21.09.2021, J. Mathew 6184 (KUBH) and 11.09.2022, J. Mathew 6209 (KUBH).



Figure 1 *Sonerila anchurulica* J.Mathew A– C: Flowering twig. D – E: Leaves. F – G: Abaxial side of the leaves. H – I: Inflorescence. J. Hypanthium with stamens exposed.

Distribution and Habitat

Found in the montane shola forest ca. 1360 m. of the Anchuruli Hills (Figure 2) in the Periyar Tiger Reserve, Western Ghats, India. Grows on the shady forest floor in association with *Ophiorrhiza pectinata* Arn. and *Gomphostemma heyneanum* Benth. *Sonerila anchurulica* is considered as an endemic to the Western Ghats, hitherto known only from two localities in the Periyar Tiger Reserve.



Figure 2 Anchuruli Hill. The type locality of *Sonerila anchurulica* J. Mathew. The river Periyar can be seen in the back of the hill.

Notes

Sonerila anchurulica shows some similarities to recently described taxon, *Sonerila periyarensis* Deepthy Kumary KP, Sreekala AK, Usha VS and Ramasubbu. Pillai et al., (2024) by same ecological preferences and vegetative characters (especially in caulescent nature and branching pattern). However, *S. anchurulica* differs by its leaves with cordate base, lavender to purple colour back side and 7 nerves (vs. round base, 2-4 nerves and pale green colour in *S. periyarensis*), Inflorescence with peduncle and having 8-10 flowers in a lax cyme (peduncle absent and 3-6 flowers in compressed cyme in *S. periyarensis*), petals elliptic in shape and pale pink in colour (vs ovate and purple in *S. periyarensis*).

Conservation Status

Sonerila anchurulica is known from only two occurrences representing two subpopulations (Anchuruli Hill and Ezhukumvayal) in Idukki district of Kerala state, separated by a distance of 10 km and its AOO (Area of occupancy) is 6 km². A total of less than 50 mature individuals were found in these locations. The main threats affecting the persistence of the populations are eaten by deer. Other threats are fast spread of the invasive alien species (i.e. *Hultholia mimosoides* (Lam.) Gagnon & G.P. Lewis; *Lantana camara* L. etc.), and fire line making.

The threatened category of *Sonerila anchurulica* could therefore be categorized as Endangered based on B2ab(ii, iii, iv, v); i.e. its small AOO (2), highly fragmented distribution (a) and calculated/observed decline (b) in AOO (ii), habitat quality (iii), number of localities (iv) and number of mature plants (v). Stringent conservation measures should be adopted to conserve this rare endemic plant species through in-situ and ex-situ methods. And further survey for this species is suggested, which would need to be conducted in June to August when Monsoon starts and plants are flowering.

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Author Contributions

Research concept, Design, Data analysis, interpretation, Drafting the article, Critical revision and Final approval: J. Mathew
Acquisition and/or assembly of data: J. Mathew, S. Pichan

Informed consent

Not applicable.

Ethical approval & declaration

In this article, as per the plant regulations in Department of Botany, University of Kerala, Thiruvananthapuram, Kerala, India, the authors observed the new species *Sonerila anchurulica* (Melastomataceae) from South Western Ghats, India. The ethical guidelines for plants & plant materials are followed in the study for sample collection & identification. Voucher materials of this new species is stored in MH (Madras Herbarium, Coimbatore, India).

Conflicts of interests:

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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